



P.B.5818 - Patentlaan 2
2280 HV Rijswijk (ZH)
☎ +31 70 340 2040
TX 31651 epo nl
FAX +31 70 340 3016

**Europäisches
Patentamt**

Zweigstelle
in Den Haag
Recherchen-
abteilung

**European
Patent Office**

Branch at
The Hague
Search
division

**Office européen
des brevets**

Département à
La Haye
Division de la
recherche

VOSSIUS & PARTNER
Siebertstrasse 4
81675 München
ALLEMAGNE

EINGEGANGEN
Vossius & Partner

30. Dez. 2002

Frist
bearb.:

Datum/Date

02.01.03

Zeichen/Ref./Ref.

E 1834 EP

Anmeldung Nr./Application No./Demande n°/Patent Nr./Patent No./Brevet n°.

00110932.1-2402-

Anmelder/Applicant/Demandeur/Patentinhaber/Proprietor/Titulaire
MITSUBISHI CHEMICAL CORPORATION

COMMUNICATION

The European Patent Office herewith transmits as an enclosure the European search report for the above-mentioned European patent application.

If applicable, copies of the documents cited in the European search report are attached.

☒ Additional set(s) of copies of the documents cited in the European search report is (are) enclosed as well.

The following specifications given by the applicant have been approved by the Search Division:

☒ abstract

☐ title

☐ The abstract was modified by the Search Division and the definitive text is attached to this communication.

The following figure will be published together with the abstract:

NONE

REFUND OF THE SEARCH FEE

If applicable under Article 10 Rules relating to fees, a separate communication from the Receiving Section on the refund of the search fee will be sent later.





DOCUMENTS CONSIDERED TO BE RELEVANT		
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim
Y	GUAGLIARDI A ET AL: "Annealing of complementary DNA strands above the melting point of the duplex promoted by an archeal protein" JOURNAL OF MOLECULAR BIOLOGY, vol. 267, no. 4, 1997, pages 841-848, XP001023539 * page 843, right-hand column, paragraph 4 - page 847, right-hand column, paragraph 1 *	1-13
Y	WO 98 17827 A (RADDING CHARLES MEYER ; UNIV YALE (US); GOLUB EFIM ILYA (US); REDDY) 30 April 1998 (1998-04-30) * page 22, line 21 - page 23, line 27; claims 8-10 *	1-13
Y	REDDY G ET AL: "Human Rad52 protein promotes single-strand DNA annealing followed by branch migration" MEDLINE, XP002067916 * the whole document *	1-13
Y	US 5 547 843 A (STUDIER F WILLIAM ET AL) 20 August 1996 (1996-08-20) * claims 1-21 *	1-13
A	WO 91 06679 A (STRATAGENE INC) 16 May 1991 (1991-05-16) * the whole document *	1-13
The present search report has been drawn up for all claims		
4	Place of search THE HAGUE	Date of completion of the search 19 December 2002
Examiner Osborne, H		
CATEGORY OF CITED DOCUMENTS		
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		
T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document		

EPO FORM 1503 03.82 (P04C01)



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 00 11 0932

DOCUMENTS CONSIDERED TO BE RELEVANT			Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
Category	Citation of document with indication, where appropriate, of relevant passages			
A	GUO Z ET AL: "DIRECT FLUORESCENCE ANALYSIS OF GENETIC POLYMORPHISMS BY HYBRIDIZATION WITH OLIGONUCLEOTIDE ARRAYS ON GLASS SUPPORTS" NUCLEIC ACIDS RESEARCH, OXFORD UNIVERSITY PRESS, SURREY, GB, vol. 22, no. 24, 11 December 1994 (1994-12-11), pages 5456-5465, XP002006248 ISSN: 0305-1048 ----- /			
				TECHNICAL FIELDS SEARCHED (Int.Cl.7)
The present search report has been drawn up for all claims				
Place of search THE HAGUE		Date of completion of the search 19 December 2002	Examiner Osborne, H	
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document		

4
EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

EP 00 11 0932

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

19-12-2002

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9817827	A	30-04-1998	US 5989879 A AU 4919197 A EP 0944738 A2 JP 2001502545 T WO 9817827 A2	23-11-1999 15-05-1998 29-09-1999 27-02-2001 30-04-1998
US 5547843	A	20-08-1996	NONE	
WO 9106679	A	16-05-1991	US 5449603 A US 5605824 A WO 9106679 A1 US 5646019 A US 5773257 A	12-09-1995 25-02-1997 16-05-1991 08-07-1997 30-06-1998

INTERNATIONAL SEARCH REPORT

Int. l. Application No

PCT/US 97/19324

A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 C12Q1/68

According to International Patent Classification(IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 C12Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	MORTENSEN U H ET AL: "DNA strand annealing is promoted by the yeast Rad52 protein."	1-3
Y	PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA 93 (20). 1996. 10729-10734. ISSN: 0027-8424, XP002067910	4-17
Y	see the whole document --- SHEN ET AL.: "Specific interactions between the human RAD51 and RAD52 proteins"	4-17
	JOURNAL OF BIOLOGICAL CHEMISTRY (MICROFILMS), vol. 271, no. 1, January 1996, MD US, pages 148-152, XP002067911 cited in the application see the whole document --- -/-	

☒ Further documents are listed in the continuation of box C.

☐ Patent family members are listed in annex.

* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

12 June 1998

Date of mailing of the international search report

03/07/1998

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Molina Galan, E

INTERNATIONAL SEARCH REPORT

In. ational Application No
PCT/US 97/19324

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	OGAWA ET AL.: "RecA like recombination proteins in eukariotes" COLD SPRING HARBOR SYMP. QUANT. BIOL, vol. 58, 1993, pages 567-576, XP002067912 see page 568, left-hand column, paragraph 3	1-17
A	--- PARK ET AL.: "Physical interaction between human RAD52 and RPA is required for homologous recombination in mamalian cells" JOURNAL OF BIOLOGICAL CHEMISTRY (MICROFILMS), vol. 271, no. 31, August 1996, MD US, pages 18996-19000, XP002067913 cited in the application see page 18998, right-hand column, last paragraph	1-17
A	--- PANYUTIN I G ET AL: "FORMATION OF A SINGLE BASE MISMATCH IMPEDES SPONTANEOUS DNA BRANCH MIGRATION" JOURNAL OF MOLECULAR BIOLOGY, vol. 230, no. 2, 20 March 1993, pages 413-424, XP000673372 cited in the application see the whole document	11-13
A	--- MURIS ET AL.: "Cloning of human and mouse gene homologous to RAD52, a yeast gene involved in DNA repair and recombination" MUTATION RESEARCH, vol. 3315, 1994, pages 295-305, XP002067914 cited in the application	
P,X	--- DATABASE MEDLINE US NATIONAL LIBRARY OF MEDICINE (NLM), BETHESDA, MD, US REDDY G ET AL: "Human Rad52 protein promotes single-strand DNA annealing followed by branch migration." XP002067916 see abstract & MUTATION RESEARCH, (1997 JUN 9) 377 (1) 53-9. ,	1-17
T	--- NEW, JAMES H. ET AL: "Rad52 protein stimulates DNA strand exchange by Rad51 and replication protein A" NATURE (LONDON) (1998), 391(6665), 407-410 CODEN: NATUAS;ISSN: 0028-0836, XP002067915 see page 402, left-hand column	1-17